

CLAIM AMENDMENTS

Claim Amendment Summary

Claims pending

- Before this Amendment: Claims 1-59.
- After this Amendment: Claims 1-59

Non-Elected, Canceled, or Withdrawn claims: None

Amended claims: 1, 2, 6-9, 11, 13-16, 18, 20, 21, 25-28, 30, 32-35, 37, 39-54, 58, and 59

New claims: None

Claims:

1. **(Currently Amended)** A method for conducting physical address discovery, facilitating point-to-point communications between hosts of a cluster operating in a cluster mode wherein acceptable messages are addressed to a shared cluster address, the method comprising the steps of:

receiving by a target host within the cluster, an address discovery request initiated by a source host seeking a physical address of ~~a the target host within the cluster~~; and

generating by the target host, an address discovery response acceptable by the source host operating in the cluster mode ~~and including~~, wherein the address discovery response comprises:

a response source physical address field specifying a non-cluster mode physical address of the target host.

2. **(Currently Amended)** The method of claim 1 wherein the address discovery request is an ARP-address resolution protocol (ARP) request.

3. **(Original)** The method of claim 1 wherein the non-cluster mode physical address of the target host is a dedicated address of the target host.

4. **(Original)** The method of claim 3 wherein the dedicated address is derived from an IP address assigned to the target host.

5. **(Original)** The method of claim 1 wherein the non-cluster mode physical address of the target host is a shared address assigned to multiple hosts within the cluster.

6. **(Currently Amended)** The method of claim 1 wherein the generating step is executed in accordance with a further step of:

determining by the target host whether the address discovery request was issued by a source host operating in the cluster mode.

7. **(Currently Amended)** The method of claim 6 wherein the ~~receiving, determining and generating steps are performed on a responding target host that is distinct from an initiating host from which the address discovery request originates~~ the source host.

8. **(Currently Amended)** The method of claim 7 wherein the determining step comprises detecting that the address discovery request includes:

a request source physical address field specifying the shared cluster address assigned to the cluster; and

a request source network communication protocol-specific address field identifying the source host as a host within the cluster of hosts.

9. **(Currently Amended)** The method of claim 8 wherein the shared cluster address is a ~~MAC~~ media access control (MAC) address.

10. **(Original)** The method of claim 9 wherein the source network communication protocol-specific address field contains an IP address.

11. **(Currently Amended)** The method of claim 8 further comprising the step of:

maintaining, by the ~~responding~~ target host, a list of network communication protocol-specific addresses corresponding to hosts within the cluster.

12. **(Original)** The method of claim 8 further comprising the steps of:
modifying the request source physical address field within the address discovery request, in accordance with the determining step, by replacing the shared cluster address with a non-cluster mode physical address of the source host.

13. **(Currently Amended)** The method of claim 12 wherein the non-cluster mode physical address is a dedicated ~~MAC~~ media access control (MAC) address.

14. **(Currently Amended)** The method of claim 12 wherein the responding target host comprises a network communication protocol-specific layer including an address discovery request handler that operates in the cluster mode and wherein the method further comprises passing, after the replacing step, the address discovery request to the address discovery request handler, and wherein the generating step comprises the further steps of:

first creating an initial address discovery response, by the address discovery request handler, based upon the modified address discovery request, the address discovery response including:

the shared cluster address within the response source physical address field;

and

the non-cluster mode physical address of the source host within a response target physical address field; and

second creating a revised address discovery response by:

first replacing the shared cluster address ~~by~~ with the non-cluster mode physical address of the source host within the response source physical address field, and

second replacing the non-cluster mode physical address of the source host ~~by~~ with the shared cluster address within the response target physical address field.

15. **(Currently Amended)** The method of claim 14 wherein the second creating step is performed by the responding target host.

16. **(Currently Amended)** The method of claim 14 wherein the responding host ~~comprises an address~~ discovery request handler ~~that maintains an address resolution table including a set of entries pairing network communication protocol-specific addresses with corresponding physical addresses,~~ the method further comprising the step of:

storing, by the address discovery request handler within the address resolution table, an entry including the non-cluster mode physical address and a corresponding network communication protocol-specific address of the source host.

17. **(Original)** The method of claim 14 wherein the network communication protocol-specific layer implements the TCP/IP protocol.

18. **(Currently Amended)** The method of claim 14 wherein the address discovery response further includes a response destination field specifying the shared cluster address assigned to the cluster, the method further comprising rendering the address discovery response acceptable by the source host operating in the cluster mode by:

replacing, within the response destination field, the non-cluster mode physical address by with the shared cluster address.

19. **(Original)** The method of claim 1 wherein the address discovery response further includes a response destination field specifying the shared cluster address assigned to the cluster.

20. **(Currently Amended)** A computer-readable medium containing comprising computer-executable instructions for conducting physical address discovery, facilitating point-to-point communications between hosts of a cluster operating in a cluster mode wherein acceptable messages are addressed to a shared cluster address, the computer-executable instructions facilitating performing the steps of:

receiving by a target host within the cluster, an address discovery request initiated by a source host seeking a physical address of a~~the target host within the cluster;~~ and

generating by the target host, an address discovery response acceptable by the source host operating in the cluster mode~~and including, wherein the address discovery response comprises:~~

a response source physical address field specifying a non-cluster mode physical address of the target host.

21. **(Currently Amended)** The computer-readable medium of claim 20 wherein the address discovery request is an ARP~~address resolution protocol (ARP)~~ request.

22. **(Original)** The computer-readable medium of claim 20 wherein the non-cluster mode physical address of the target host is a dedicated address of the target host.

23. **(Original)** The computer-readable medium of claim 22 wherein the dedicated address is derived from an IP address assigned to the target host.

24. **(Original)** The computer-readable medium of claim 20 wherein the non-cluster mode physical address of the target host is a shared address assigned to multiple hosts within the cluster.

25. **(Currently Amended)** The computer-readable medium of claim 20 wherein the generating step is executed in accordance with a further step of:

determining by the target host whether the address discovery request was issued by a source host operating in the cluster mode.

26. **(Currently Amended)** The computer-readable medium of claim 25 wherein the ~~receiving, determining and generating steps are performed on a responding target host that is distinct from an initiating host from which the address discovery request originates~~ the source host.

27. **(Currently Amended)** The computer-readable medium of claim 26 wherein the determining step comprises detecting that the address discovery request includes:

a request source physical address field specifying the shared cluster address assigned to the cluster; and

a request source network communication protocol-specific address field identifying the source host as a host within the cluster ~~of hosts~~.

28. **(Currently Amended)** The computer-readable medium of claim 27 wherein the shared cluster address is a ~~MAC~~ media access control (MAC) address.

29. **(Original)** The computer-readable medium of claim 28 wherein the source network communication protocol-specific address field contains an IP address.

30. **(Currently Amended)** The computer-readable medium of claim 27 further comprising computer-executable instructions for performing the step of:

maintaining, by the ~~responding target~~ host, a list of network communication protocol-specific addresses corresponding to hosts within the cluster.

31. (Original) The computer-readable medium of claim 27 further comprising computer-executable instructions for performing the steps of:

modifying the request source physical address field within the address discovery request, in accordance with the determining step, by replacing the shared cluster address with a non-cluster mode physical address of the source host.

32. (Currently Amended) The computer-readable medium of claim 31 wherein the non-cluster mode physical address is a dedicated MAC media access control (MAC) address.

33. (Currently Amended) The computer-readable medium of claim 31 wherein the ~~responding-target~~ host comprises a network communication protocol-specific layer including an address discovery request handler that operates in the cluster mode and wherein the method further comprises passing, after the replacing step, the address discovery request to the address discovery request handler, and wherein the generating step comprises the further steps of:

first creating an initial address discovery response, by the address discovery request handler, based upon the modified address discovery request, the address discovery response including:

the shared cluster address within the response source physical address field;

and

the non-cluster mode physical address of the source host within a response target physical address field; and

second creating a revised address discovery response by:

first replacing the shared cluster address ~~by~~ with the non-cluster mode physical address of the source host within the response source physical address field, and

second replacing the non-cluster mode physical address of the source host by with the shared cluster address within the response target physical address field.

34. (Currently Amended) The computer-readable medium of claim 33 wherein the second creating step is performed by the ~~responding~~ target host.

35. (Currently Amended) The computer-readable medium of claim 33 wherein the ~~responding host comprises an address~~ discovery request handler that maintains an address resolution table including a set of entries pairing network communication protocol-specific addresses with corresponding physical addresses, the method further comprising the step of:

storing, by the address discovery request handler within the address resolution table, an entry including the non-cluster mode physical address and a corresponding network communication protocol-specific address of the source host.

36. (Original) The computer-readable medium of claim 33 wherein the network communication protocol-specific layer implements the TCP/IP protocol.

37. (Currently Amended) The computer-readable medium of claim 33 wherein the address discovery response further includes a response destination field specifying the shared cluster address assigned to the cluster, the computer-readable medium further comprising computer-executable instructions for rendering the address discovery response acceptable by the source host operating in the cluster mode by:

replacing, within the response destination field, the non-cluster mode physical address by with the shared cluster address.

38. (Original) The computer-readable medium of claim 20 wherein the address discovery response further includes a response destination field specifying the shared cluster address assigned to the cluster.

39. (Currently Amended) A host computer system including physical address discovery components facilitating point-to-point communications between hosts of a cluster operating in a cluster mode wherein acceptable messages are addressed to a shared cluster address, the computer system comprising:

a network interface for receiving an address discovery request initiated by a source host seeking a physical address of a target host within the cluster;

a transport layer component for carrying out transport-protocol specific processing of network requests; and

intracluster address discovery logic interposed between the network interface and the transport layer component of the host system, the intracluster address discovery logic performing the step of:

generating an address discovery response acceptable by the source host operating in the cluster mode and including:

a response source physical address field specifying a non-cluster mode physical address of the target host,

wherein the host computer system is one of the hosts of the cluster operating in the cluster mode.

40. (Currently Amended) The host computer system of claim 39 wherein the address discovery request is an ARP-address resolution protocol (ARP) request.

41. (Currently Amended) The host computer system of claim 39 wherein the non-cluster mode physical address of the target host is a dedicated address of the target host.

42. (Currently Amended) The host computer system of claim 41 wherein the dedicated address is derived from an IP address assigned to the target host.

43. (Currently Amended) The host computer system of claim 39 wherein the generating step is executed in accordance with a further step of:

determining whether the address discovery request was issued by a source host operating in the cluster mode.

44. (Currently Amended) The host computer system of claim 43 wherein the determining step performed by the intraccluster address discovery logic comprises detecting that the address discovery request includes:

a request source physical address field specifying the shared cluster address assigned to the cluster; and

a request source network communication protocol-specific address field identifying a host within the cluster of hosts.

45. (Currently Amended) The host computer system of claim 44 wherein the shared cluster address is a MAC-media access control (MAC) address.

46. (Currently Amended) The host computer system of claim 45 wherein the source network communication protocol-specific address field contains an IP address.

47. (Currently Amended) The host computer system of claim 44 further comprising a list of network communication protocol-specific addresses corresponding to hosts within the cluster.

48. (Currently Amended) The host computer system of claim 44 wherein the intracuster address discovery logic comprises executable instructions for:

modifying the request source physical address field within the address discovery request, in accordance with the determining step, by replacing the shared cluster address with a non-cluster mode physical address of the source host.

49. (Currently Amended) The host computer system of claim 48 wherein the non-cluster mode physical address is a dedicated MAC media access control (MAC) address.

50. (Currently Amended) The host computer system of claim 48 wherein ~~the a~~ the transport layer component includes an address discovery request handler that operates in the cluster mode and wherein the method further comprises passing, after the replacing step, the address discovery request to the address discovery request handler, and wherein the generating step performed by the intracuster address discovery logic comprises the further steps of:

first creating an initial address discovery response, by the address discovery request handler, based upon the modified address discovery request, the address discovery response including:

the shared cluster address within the response source physical address field;

and

the non-cluster mode physical address of the source host within a response target physical address field; and

second creating a revised address discovery response by:

first replacing the shared cluster address ~~by~~ with the non-cluster mode physical address of the source host within the response source physical address field, and

second replacing the non-cluster mode physical address of the source host ~~by~~ with the shared cluster address within the response target physical address field.

51. (Currently Amended) The host computer system of claim 50 ~~further comprising an~~, wherein the address discovery request handler ~~that maintains an address resolution table including a set of entries pairing network communication protocol-specific addresses with corresponding physical addresses, and wherein the address~~ discovery request handler stores, within the address resolution table, an entry including the non-cluster mode physical address and a corresponding network communication protocol-specific address of the source host.

52. (Currently Amended) The host computer system of claim 50 wherein ~~the a~~ the transport layer component implements the TCP/IP protocol.

53. (Currently Amended) The host computer system of claim 44 wherein the address discovery response further includes a response destination field specifying the shared cluster address assigned to the cluster.

54. (Currently Amended) A method for processing point-to-point communications between hosts of a cluster operating in a cluster mode implemented by a network communication protocol-specific layer of each host, and wherein acceptable messages are addressed to a shared cluster address, the method comprising the steps of:

receiving an intracenter message issued by an initiating host including a non-cluster mode physical address of a target host within a message destination field;

replacing, within the intracenter message by the target host, the non-cluster mode physical address ~~by~~ with the shared cluster address; and

presenting, after the replacing step, the intracenter message to the network communication protocol-specific layer.

55. (Original) The method of claim 54 wherein the replacing step is performed by a network load balancing component.

56. (Original) The method of claim 54 wherein the network communication protocol-specific layer implements TCP/IP.

57. (Original) The method of claim 54 further comprising the step of:
generating an intracenter response message including a non-center mode physical address for the initiating host within the message destination field.

58. (Currently Amended) The method of claim 57 further comprising the steps of:

receiving, by the initiating host, the intracenter response message including the non-center mode physical address for the initiating host within the message destination field;

replacing, within the intracenter response message by the initiating host, the non-center mode physical address ~~by~~ with the shared center address; and

presenting, after the replacing step, the intracenter message to the network communication protocol-specific layer within the initiating host.

59. (Currently Amended) A method for performing point-to-point communications between hosts of a cluster operating in a cluster mode ~~implemented by a network communication protocol-specific layer of each host, and wherein~~, wherein acceptable messages are addressed to a shared cluster address, the method comprising the steps of:

receiving by a target host within the cluster, an address discovery request seeking a physical address of ~~a the target host within the cluster~~;

determining by the target host, that the address discovery request was issued by a source host within the cluster, operating in the cluster mode;

generating by the target host, an address discovery response acceptable by the source host operating in the cluster mode ~~and~~, the address discover response including:

a response source physical address field specifying a non-cluster mode physical address of the target host;

receiving by the target host, an intraccluster message issued by the source host, the intraccluster message including a non-cluster mode physical address of the target host within a message destination field;

replacing, within the intraccluster message by the target host, the non-cluster mode physical address by with the shared cluster address; and

presenting, after the replacing step, the intraccluster message to ~~the~~ a network communication protocol-specific layer of the target host.